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Amendments to the Claims

Listing of Claims

The following listing of claims supersedes all previous claims.

Claims 1-14 (canceled)

Claim 15 (Currently Amended). A plasma processing system, comprising:

a set of rings, including a top ring and a set of lower rings having at least one lower ring;

a stepped hanger structure coupled to said top ring, said stepped hanger structure supporting said set of lower rings;

a hanger assembly including a plunger shaft and a hanger adapter lip portion, said hanger adapter lip portion being fixed relative to said plunger shaft;

a receiving bore defined by a first cavity ~~in~~ through said top ring, wherein a longitudinal axis of said first cavity is substantially parallel to a longitudinal axis of said plunger shaft, and wherein said first cavity is larger than said hanger adapter lip portion; and

a locking bore defined by a second cavity partially through ~~in~~ said top ring, wherein said stepped hanger structure is angularly offset from said locking bore, and a longitudinal axis of said second cavity is substantially parallel to said longitudinal axis of said plunger shaft, and wherein said second cavity is ~~smaller than~~ configured to receive said hanger adapter lip portion, and said receiving bore and said locking bore are connected with a shaft passage created through said top ring that at least accommodates a passage by said plunger shaft from said receiving bore to said lock bore, said stepped hanger structure projecting from a first surface of said top ring in a first direction away from said first surface, said hanger assembly, when locked in said locking bore, projects from a second surface of said top ring that is opposite said first surface in a second direction that is opposite from said first direction such that said plunger shaft protrudes through said second surface, said hanger assembly, when said hanger adapter lip is

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locked in said locking bore, is coupled to said top ring without traversing through said set of lower rings, said stepped hanger structure on the other hand traverses through at least one ring in said set of lower rings when said stepped hanger structure is coupled to said top ring.

Claim 16 (previously presented). The plasma processing system of claim 15, wherein each of said set of rings is formed of a dielectric material.

Claim 17 (previously presented). The plasma processing system of claim 16, wherein said dielectric material is quartz.

Claim 18 (previously presented) The plasma processing system of claim 15, wherein said hanger adapter lip portion is positioned in said locking bore during plasma processing.

Claim 19 (Previously Presented) The plasma processing system of claim 15, wherein said top ring is secured by moving said set of rings in a direction substantially parallel to said longitudinal axis of said plunger shaft to insert said hanger adapter lip portion into said receiving bore of said top ring, and then rotating said set of rings to seat said hanger adapter lip portion into said locking bore.

Claim 20 (canceled)

Claim 21. (Currently Amended) The plasma processing system of claim 19, wherein said stepped hanger structure is fixedly coupled only to said top ring of said set of rings such that said stepped hanger structure and said top ring are fixed in position relative to one another when said set of lower rings collapse.

Claims 22. – 25. (canceled)

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Claim 26. (currently amended) The plasma processing system of claim 15, wherein said locking bore is counter-sunk in said first ~~a lower~~ surface of said top ring.

Claim 27.(Withdrawn) In a plasma processing system, a method of attaching a focus ring assembly comprising:

providing said focus ring assembly, said focus ring assembly including

a set of rings, said set of rings including a top ring and a set of lower rings having at least one lower ring,

a stepped hanger structure coupled to said top ring, said stepped hanger structure supporting said set of lower rings,

a hanger assembly including a plunger shaft and a hanger adapter lip portion, said hanger adapter lip portion being fixed relative to said plunger shaft,

a receiving bore defined by a first cavity in said top ring, wherein a longitudinal axis of said first cavity is substantially parallel to a longitudinal axis of said plunger shaft, and wherein said first cavity is larger than said hanger adapter lip portion, and

a locking bore defined by a second cavity in said top ring, wherein a longitudinal axis of said second cavity is substantially parallel to said longitudinal axis of said plunger shaft, and wherein said second cavity is smaller than said hanger lip portion, and said receiving bore and said locking bore are connected; and

moving said set of rings in a direction substantially parallel to a longitudinal axis of said plunger shaft to insert said hanger lip portion into said receiving bore of said top ring, and then rotating said set of rings to seat said hanger lip portion into said locking bore.

Claim 28.(Withdrawn) The method of claim 27, wherein each of said set of rings is formed of a dielectric material.

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Claim 29.(Withdrawn) The method of claim 28, wherein said set dielectric material is quartz.

Claim 30.(Withdrawn) The method of claim 27, wherein said hanger adapter is positioned in said locking bore during plasma processing.

Claim 31.(Cancelled)

Claim 32.(Withdrawn) The method of claim 31, wherein said stepped hanger structure is coupled only to said top ring of said set of rings.

Claim 33.(Withdrawn) The method of claim 32, wherein said hanger lip portion is coupled only to said top ring of said set of rings.

Claim 34.(Withdrawn) The method of claim 27, wherein said stepped hanger structure is coupled only to said top ring of said set of rings.

Claim 35. (Withdrawn) The method of claim 34, wherein said hanger lip portion is coupled only to said top ring of said set of rings.

Claim 36.(Withdrawn) The method of claim 27, wherein said locking bore is counter-sunk in a lower surface of said top ring.

Claim 37 (New). A plasma processing system having a plasma processing chamber, comprising:

- a hanger assembly including a plunger shaft and a hanger adapter lip portion, said hanger adapter lip portion being fixed relative to said plunger shaft, said hanger assembly being coupled to a component of said plasma processing chamber; and

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a ring assembly configured to be detachably coupled to said hanger assembly,
said ring assembly including

a set of rings, including a top ring and a set of lower rings having at least
one lower ring, and

a stepped hanger structure coupled to said top ring, said stepped hanger
structure supporting said set of lower rings,

wherein said top ring has a receiving bore defined by a first cavity
through said top ring, said first cavity being larger than said hanger adapter lip portion,
said top ring also has a locking bore defined by a second cavity partially through said top
ring, said stepped hanger structure being angularly offset from said locking bore, said
second cavity being configured to receive said hanger adapter lip portion, said receiving
bore and said locking bore being connected with a shaft passage created through said top
ring that at least accommodates a passage by said plunger shaft from said receiving bore
to said lock bore, said stepped hanger structure projecting from a first surface of said top
ring in a first direction away from said first surface, said hanger assembly, when locked
in said locking bore, projects from a second surface of said top ring that is opposite said
first surface in a second direction that is opposite from said first direction such that said
plunger shaft protrudes through said second surface, said hanger assembly, when said
hanger adapter lip is locked in said locking bore, is coupled to said top ring without
traversing through said set of lower rings, said stepped hanger structure on the other hand
traverses through said set of lower rings when said stepped hanger structure is coupled to
said top ring,

wherein said ring assembly, including said set of rings and said stepped
hanger structure, is configured as a pre-assembled unit to facilitate coupling with said
hanger assembly in a twist-n-lock manner using said receiving bore, said shaft passage,
and said locking bore.

Claim 38 (New). The plasma processing system of claim 37, wherein each of said
set of rings is formed of a dielectric material.

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Claim 39 (New). The plasma processing system of claim 38, wherein said dielectric material is quartz.

Claim 40 (New) The plasma processing system of claim 37, wherein said hanger adapter lip portion is positioned in said locking bore during plasma processing.

Claim 41 (New) The plasma processing system of claim 37, wherein said top ring is secured by moving said set of rings in a direction substantially parallel to said longitudinal axis of said plunger shaft to insert said hanger adapter lip portion into said receiving bore of said top ring, and then rotating said set of rings to seat said hanger adapter lip portion into said locking bore.

Claim 42 (New) The plasma processing system of claim 37, wherein said stepped hanger structure is fixedly coupled to said top ring of said set of rings such that said stepped hanger structure and said top ring are fixed in position relative to one another when said set of lower rings collapse.

Claim 43 (New) The plasma processing system of claim 37, wherein said locking bore is counter-sunk in said first surface of said top ring.